Conventional Art

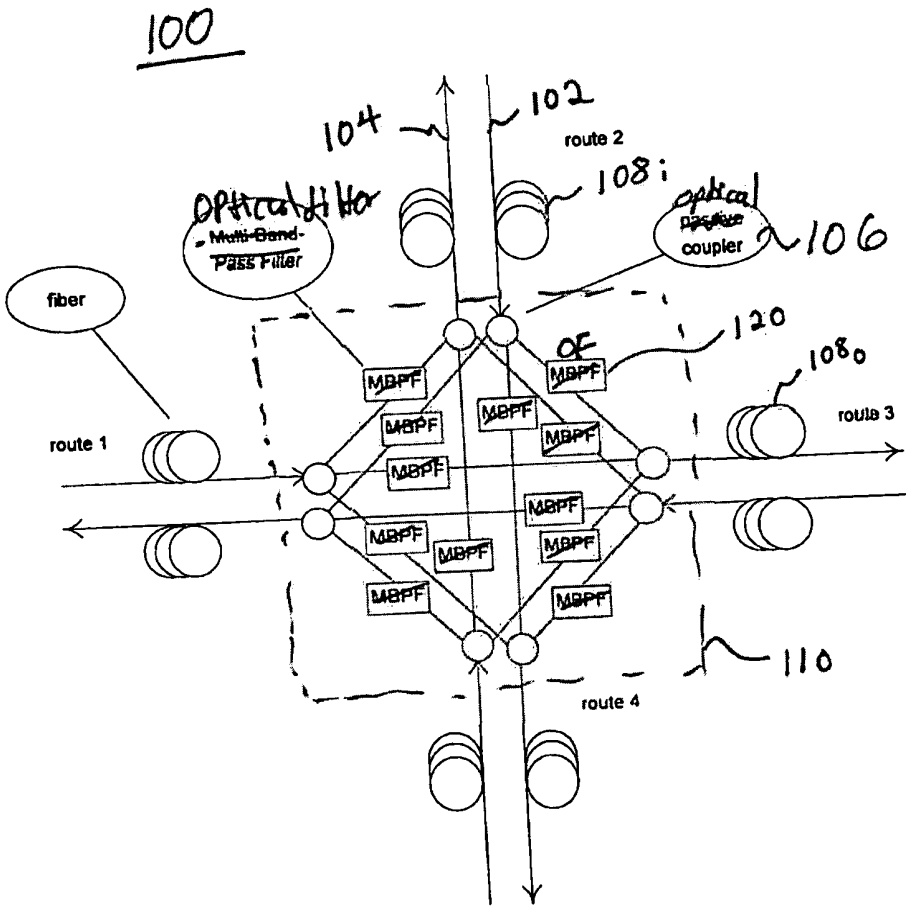


FIG. 1.

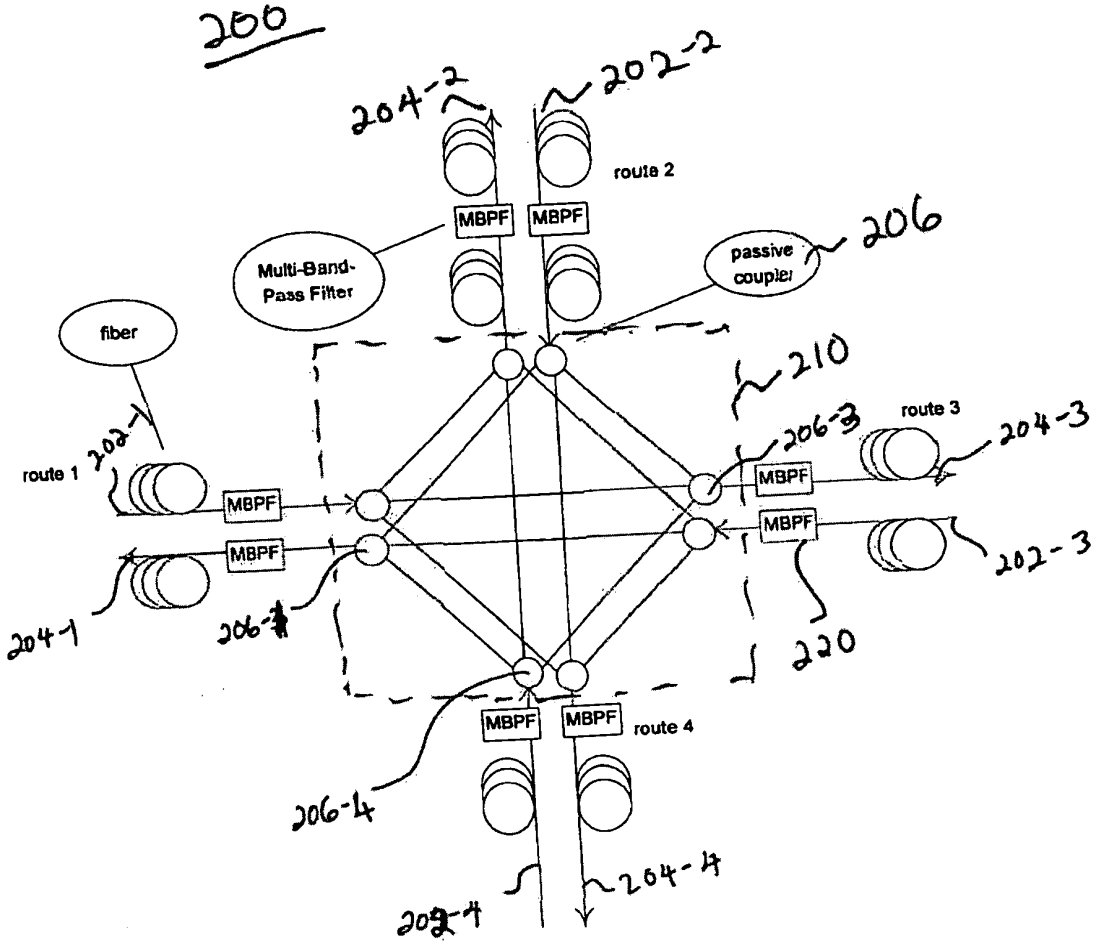

200
204-2
202-2
route 2
MBPF
MBPF
Multi-Band-Pass Filter
passive coupler
206
fiber
210
route 1
202-1
206-3
route 3
204-3
MBPF
MBPF
MBPF
MBPF
202-3
204-1
206-1
220
MBPF
MBPF
route 4
206-4
204-4
202-4

FIG. 2.

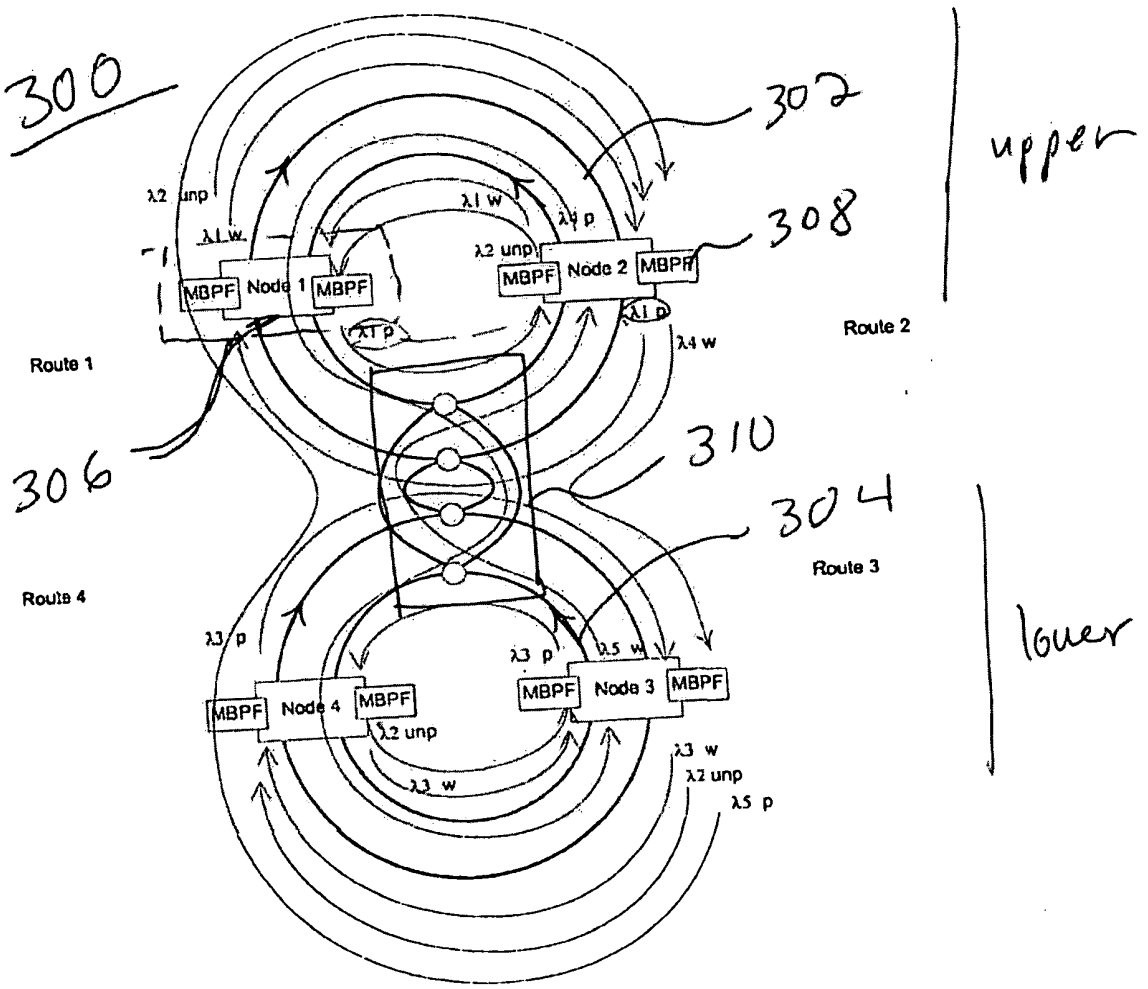

300
302
upper
308
λ2 unp
λ1 w
λ1 w
λ4 p
λ2 unp
MBPF
Node 1
MBPF
MBPF
Node 2
MBPF
λ1 p
λ1 p
λ4 w
Route 1
Route 2
306
310
304
Route 4
Route 3
λ3 p
λ3 p
λ5 w
MBPF
Node 4
MBPF
MBPF
Node 3
MBPF
λ2 unp
λ3 w
λ3 w
λ2 unp
λ5 p
lower

FIG. 3.

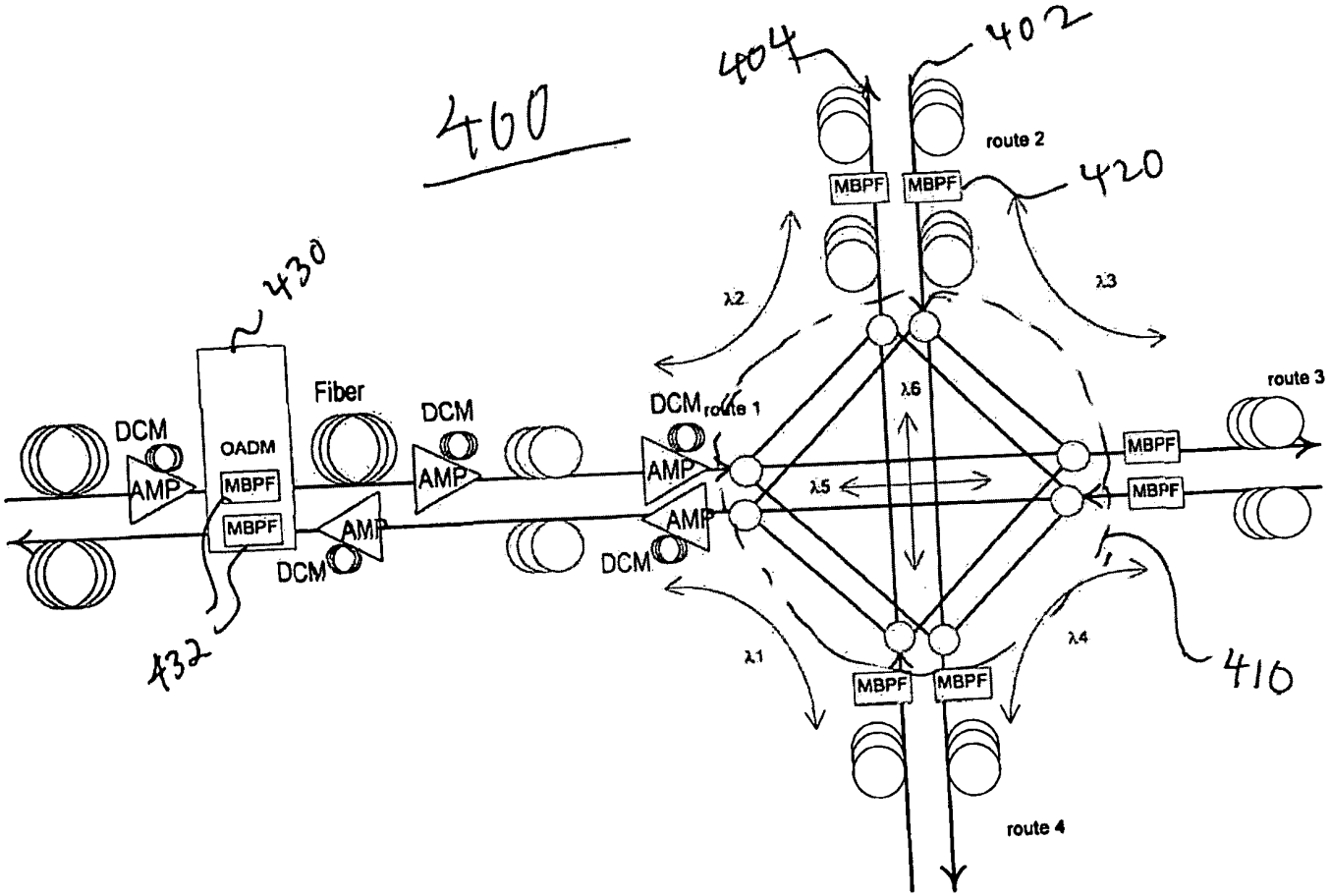
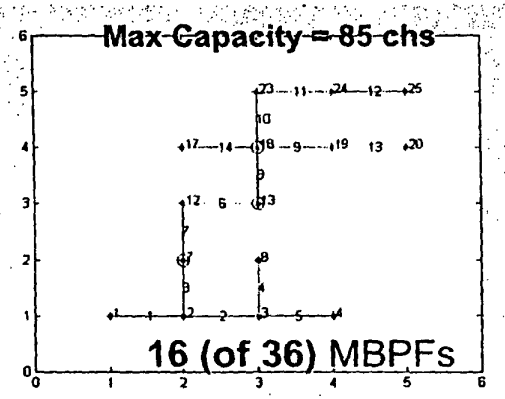

460
404
402
route 2
MBPF
MBPF
420
λ2
λ3
430
Fiber
DCM
AMP
OADM
MBPF
MBPF
DCM
AMP
DCM
AMP
DCM
route 1
AMP
DCM
λ6
route 3
MBPF
λ5
MBPF
AMP
432
λ1
λ4
410
MBPF
MBPF
route 4

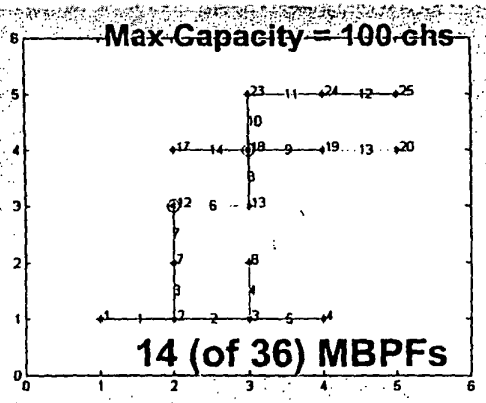
FIG. 4.

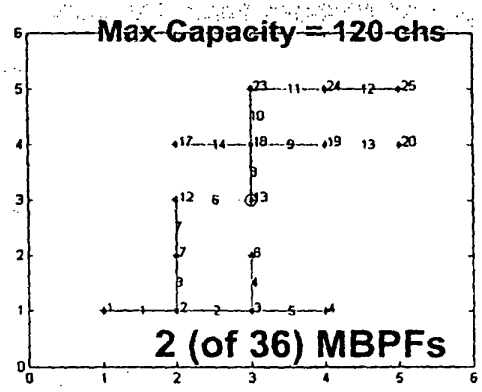
Example (model network)
Shows how MBPF count drops with higher system capacity

```
path = [1 2
   2 3
   2 7
   3 8
   3 4
   12 13
   7 12
   13 18
   18 19
   18 23
   23 24
   24 25
   19 20
   17 18] ;

demand = [  1 8 20
   2 8 10
   2 7 10
   2 12 20
   2 20 20
   17 20 10
   13 18 15
   12 13 15
   12 23 10
   18 25 20
   13 17 20
   13 24 20
   7 12 15 ] ;
```







- * -- network node
- O -- MBPF place

FIG. 5

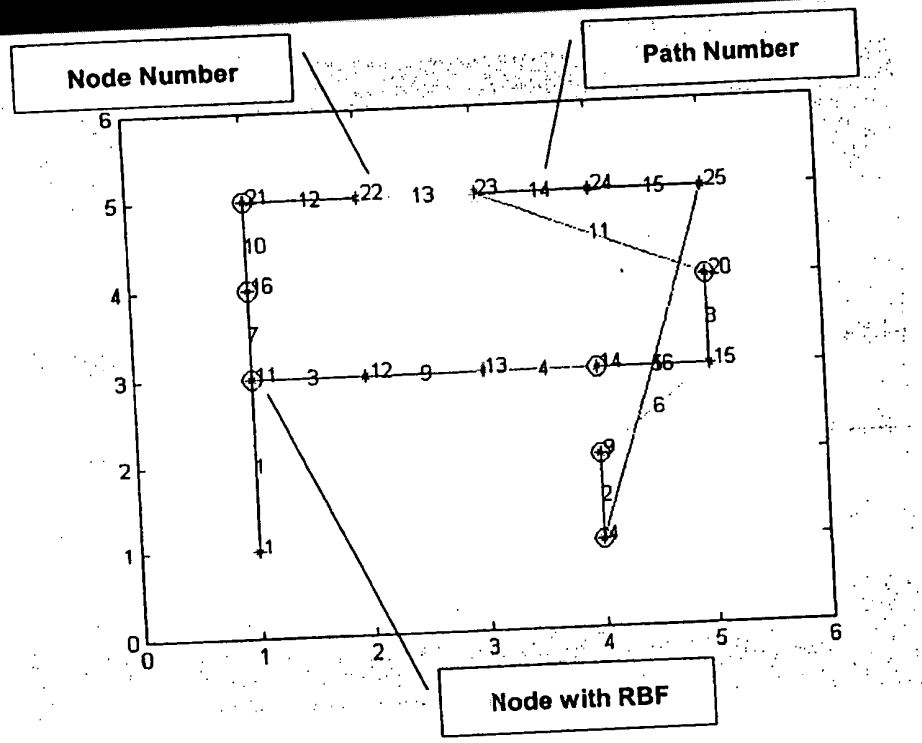
Example using carrier subnet: Ext-band amps, 256 chs max

path =

1	11	1
4	9	2
11	12	3
13	14	4
14	15	5
9	15	6
11	16	7
15	20	8
12	13	9
16	21	10
20	23	11
21	22	12
22	23	13
23	24	14
24	25	15
4	25	16

demand =

1	11	127
11	12	49
12	13	41
13	14	43
14	15	45
11	16	127
16	21	125
21	22	58
22	23	60
23	20	67
20	15	69
9	15	105
4	9	109
4	25	6
23	24	5
1	21	127
21	4	49
24	25	5



- * -- network node
- O -- MBPF place
- Note: only 18 out of 40 possible MBPFs deployed!

FIG. 6

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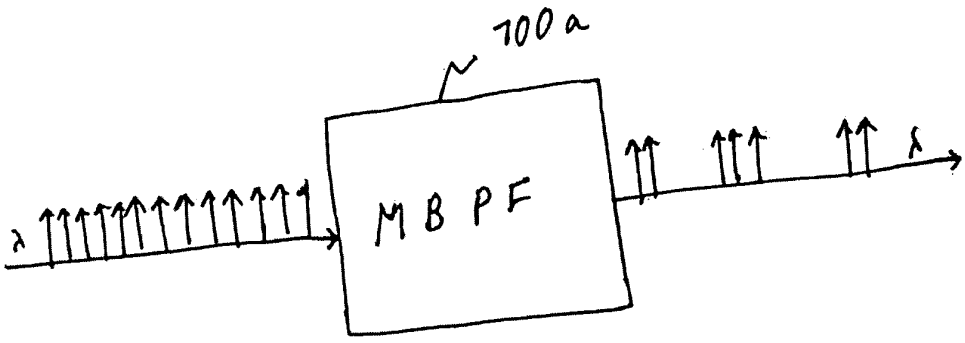

Fig. 7a

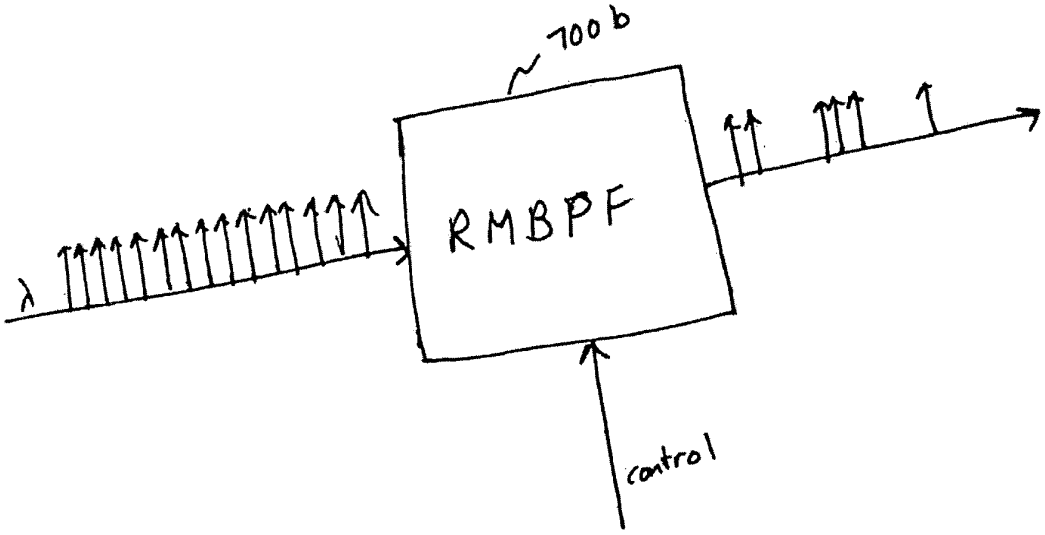

Fig. 7b

800

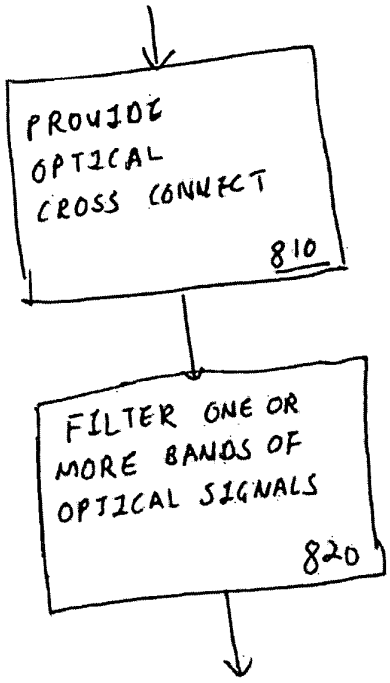
PROVIDE OPTICAL CROSS CONNECT
810
FILTER ONE OR MORE BANDS OF OPTICAL SIGNALS
820

Fig. 8